What is claimed is:

1. A pigment dispersion liquid comprising pigment particles dispersed in a dispersion medium, the difference (D_{90} - D_{10}) between D_{90} and D_{10} being not more than 25 nm, wherein D_{90} and D_{10} represent the primary particle size that the pigment particles having a primary particle size up to and including D_{90} account for 90% by number of the total pigment particles, and the particle size that the pigment particles having a primary particle size up to and including D_{10} account for 10% by number of the total pigment particles, respectively, in the integral of the primary particle size distribution function dG = f(D) x dD of the pigment particles in which G is a particle number (%) and D is a primary particle size (nm).

2. The pigment dispersion liquid of claim 1, wherein the average primary particle size of the pigment particles is not more than 30 nm.

3. The pigment dispersion liquid of claim 1, further comprising a water soluble polymer or a surfactant.

4. The pigment dispersion liquid of claim 1, wherein a water soluble polymer is adsorbed on the surface of the pigment particles.

5. The pigment dispersion liquid of claim 4, wherein the water soluble polymer has an anionic polar group.

6. The pigment dispersion liquid of claim 1, wherein a surfactant is adsorbed on the surface of the pigment particles.

7. The pigment dispersion liquid of claim 1, wherein the pigment dispersion liquid comprises a pigment derivative having a polar group.

8. The pigment dispersion liquid of claim 1, wherein the dispersion medium is an aqueous medium containing water in an amount of at least 50% by weight.

9. A pigment dispersion liquid comprising pigment particles dispersed in a dispersion medium, the polydispersity index (PDI) of the pigment particles represented by formula (1) being not more than 2,

formula (1)

$$PDI = (D_{90}-D_{10})/D_{50}$$

wherein D_{90}, D_{50}, and D_{10} represent the primary particle size that the pigment particles having a primary particle size up to and including D_{90} account for 90% by number of the total pigment particles, the primary particle size that the pigment particles having a primary particle size up to and including D_{50} account for 50% by number of the total pigment particles,

and the particle size that the pigment particles having a primary particle size up to and including D_{10} account for 10% by number of the total pigment particles, respectively, in the integral of the primary particle size distribution function dG = f(D) x dD of the pigment particles in which G is a particle number (%) and D is a primary particle size (nm).

10. The pigment dispersion liquid of claim 9, further comprising a water soluble polymer or a surfactant.

11. The pigment dispersion liquid of claim 9, wherein a water soluble polymer is adsorbed on the surface of the pigment particles.

12. The pigment dispersion liquid of claim 11, wherein the water soluble polymer has an anionic polar group.

13. The pigment dispersion liquid of claim 9, wherein a surfactant is adsorbed on the surface of the pigment particles.

14. The pigment dispersion liquid of claim 9, wherein the pigment dispersion liquid comprises a pigment derivative having a polar group.

15. The pigment dispersion liquid of claim 9, wherein the dispersion medium is an aqueous medium containing water in an amount of at least 50% by weight.

16. A process for manufacturing a pigment dispersion liquid, wherein the process comprises the step of mixing a solution containing pigment and a polymer with a liquid medium in which the pigment are insoluble to precipitate pigment particles.

17. The process of claim 16, wherein the polymer is water soluble, and at least 50% by weight of the liquid medium is water.

18. The process of claim 16, wherein desalting is carried out at the same time as the precipitation of the pigment particles.

19. A process for manufacturing a pigment dispersion liquid, wherein the process comprises the step of mixing a solution containing pigment with a liquid medium containing a polymer, the pigment being insoluble in the liquid medium, to precipitate pigment particles.

20. The process of claim 19, wherein the polymer is water soluble, and at least 50% by weight of the liquid medium is water.

21. The process of claim 20, wherein desalting is carried out at the same time as the precipitation of the pigment particles.

22. A process for manufacturing a pigment dispersion liquid, wherein the process comprises the step of mixing a solution containing pigment and a surfactant with a liquid medium in which the pigment is insoluble to precipitate pigment particles.

23. A pigment ink for ink jetting comprising the pigment dispersion liquid of claim 1 or the pigment dispersion liquid manufactured according to the process of claim 16.

24. A pigment ink for ink jetting comprising the pigment dispersion liquid of claim 9 or the pigment dispersion liquid manufactured according to the process of claim 19.

25. An ink jet image recording method, wherein the method comprises the step of jetting the pigment ink for ink jetting of claim 23 on a porous ink jet recording sheet to form an image.

26. The ink jet image recording method of claim 25, wherein the average primary particle size of the pigment particles contained in the pigment ink is not more than 80% of an average void size of the porous ink jet recording sheet.

27. An ink jet image recording method, wherein the method comprises the step of jetting the pigment ink for ink jetting of claim 24 on a porous ink jet recording sheet to form an image.

28. The ink jet image recording method of claim 27, wherein the average primary particle size of the pigment particles contained in the pigment ink is not more than 80% of an average void size of the porous ink jet recording sheet.

29. A process for manufacturing a pigment dispersion liquid, wherein the method comprises the step of adding a pigment solution to an aqueous pigment solution in which a pigment derivative having an anionic group is dissolved in an aqueous medium or an aqueous pigment dispersion liquid in which a pigment derivative having an anionic group is dispersed in an aqueous medium.

30. The process of claim 29, wherein the pigment derivative has the same nucleus as the pigment.

31. The process of claim 29, wherein the pigment derivative and the pigment each have a quinacridone nucleus, and the pigment solution is a solution in which the pigment is dissolved in an alkali aprotic polar solvent.

32. The process of claim 29, wherein the anionic group is a sulfonic acid group or its salt group.

33. A pigment ink manufactured from the pigment dispersion liquid manufactured according to the process of claim 29.